'Do Not Block the Way of Inquiry':
Cultivating collective doubt through sustained deep reflective thinking

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ABSTRACT

We provide a Camusian/Peircean notion of inquiry that emphasises an attitude of fallibilism and sustained epistemic dissonance as a conceptual framework for a theory of classroom practice founded on Deep Reflective Thinking (DRT), in which the cultivation of collective doubt, reflective evaluation and how these relate to the phenomenological aspects of inquiry are central to communities of inquiry. In a study by Fynes-Clinton, preliminary evidence demonstrates that if students engage in DRT, they more frequently experience cognitive dissonance and as a result improve their ability to engage in further and more frequent DRT.

Sustained intellectual progress occurs when the inquiry reaches a point whereby students can thoughtfully move between the position of disequilibrium (doubt) and equilibrium (belief) whilst understanding the impermanency of any fixed belief, which, in turn, enables reconstruction of thinking and appropriation of learning in the context of collaborative philosophical inquiry.

KEYWORDS
collaborative philosophical inquiry, deep reflective thinking, Charles Peirce, John Dewey, Albert Camus, Matthew Lipman, community of inquiry.

RESUMEN
Proporcionamos una noción camusiana/peirceana de investigación que enfatiza una actitud de falibilismo y disonancia epistémica sostenida como marco conceptual para una teoría de la práctica en el aula fundada en el Pensamiento Reflexivo Profundo (DRT, según las iniciales en inglés), en el cual el cultivo de la duda colectiva, la evaluación reflexiva y cómo éstas se relacionan con los aspectos fenomenológicos de la investigación son centrales en las comunidades de investigación. En un estudio realizado por Fynes-Clinton, la evidencia preliminar demuestra que si los estudiantes se involucran en DRT, experimentan en más ocasiones disonancia cognitiva y como resultado mejoran su capacidad para participar más frecuentemente en DRT. El progreso intelectual sostenido ocurre cuando la investigación alcanza un punto en el cual los estudiantes pueden moverse pensativamente entre la posición de desequilibrio (duda) y equilibrio (creencia) mientras que entienden la impermanencia de cualquier creencia fija, que a su vez permite la reconstrucción del pensamiento y la apropiación del aprendizaje en el contexto de la investigación filosófica colaborativa.

PALABRAS CLAVE
Diálogo filosófico colaborativo, pensamiento reflexivo profundo, Charles Peirce, John Dewey, Albert Camus, Matthew Lipman, comunidad de diálogo.

INTRODUCTION

Matthew Lipman (1991) provides a model of education that focuses on the development of students' capacities to think reflectively, the aim of which is the development of an educational philosophy (defined as the use of philosophy for obtaining educational objectives) 'redesigned and reconstructed so as to make it available and acceptable and enticing to children' (p. 262). There is an abundance of literature on Lipman's educational philosophy, especially regarding the idea of converting the classroom into a community of inquiry (Lipman, 1991, 2003; Seixas, 1993; Splitter & Sharp, 1995; Sprod 2001; Gregory 2002; Pardales & Girod, 2006; Burgh, 2009) and the cognitive and social benefits of CPI in schools (Lipman, Sharp and Oscanyan, 1980; Burgh, Field & Freakley, 2006). In recent years, well-designed research studies have, likewise, concentrated on cognitive benefits, i.e., schooling and thinking skills, and social benefits (Millett & Tapper, 2012). An analysis of eighteen studies by García Moriyón, Rebollo and Colom (2005) concluded that 'the implementation of P4C led to an improvement in students' reasoning skills of more than half a standard deviation' (p. 19). Topping and Trickey's studies concluded that the practice of CPI produces increases in measured IQ, sustained cognitive benefits, and clear performance

gains in other school studies (Trickey & Topping, 2004, 2006, 2007; Topping & Trickey, 2007a, 2007b, 2007c). Recent research conducted in Australia has shown the potential for CPI to foster pedagogical transformation (Scholl, Nichols & Burgh, 2009, 2014, 2016), and more effective learning in the science classroom (Burgh & Nichols, 2012; Nichols, Burgh & Kennedy, 2017).

Lipman was heavily influenced by John Dewey's conception of reflective education – an educational tradition that has its roots in Socratic teaching – and by Charles Peirce, Lev Vygotsky, and George Herbert Mead. In this paper, we return to Lipman's pragmatist roots in Peirce, most notably his notion of genuine doubt, which we reinvigorate by borrowing the language and concepts of Albert Camus (Burgh & Thornton, 2016a, 2016b). We argue that *there is room to improve the fit between Lipman's theoretical explorations and classroom practice*. To this end, we outline a theory of practice founded on deep reflective thinking, the cultivation of collective doubt and reflective evaluation as central to inquiry (Fynes-Clinton, 2015; Nichols, Burgh & Fynes-Clinton, 2017), and how these relate to the phenomenological aspects of inquiry. Our argument has implications for teacher preparation programs and professional development, pointing to the need for greater emphasis on praxis, i.e., to be informed by the theory and the theory by practice, or as Dewey would have it, by an understanding of the interaction between habit and habitat.

Lucid Education

In this section, we will draw out what we consider to be the most important principles of inquiry for classroom practice, highlighting how they connect to Peirce's theories, to inform how they can, and have been, implemented in the classroom.

In his 'First Rule of Logic', Peirce (1899) asserts the importance of eliminating barriers to inquiry to permit methodical investigations that advance truth: 'Upon this first, and in one sense this sole, rule of reason, that in order to learn you must desire to learn, and in so desiring not be satisfied with what you already incline to think, there follows one corollary which itself deserves to be inscribed upon every wall of the city of philosophy: *Do not block the way of inquiry*'. (p. 48, *emphasis* added).

In this passage, Peirce makes the connection between learning and the desire to learn, which is necessitated by dissatisfaction with beliefs or uncertainty; a *felt* experience he called genuine doubt. He proposed four methods by which people move from genuine doubt to belief: tenacity, *a priori*, authority, and experimentation. The first three methods all resolve doubt and fixate belief by opinion, but do so by blocking inquiry. In contrast, experimentation, is an inquiry process of collecting observations and generating hypotheses to account for these observations to reach a conclusion based upon an inferential process.

The feeling of uncertainty is indispensable to experimentation as it is essential for wonder from which inquiry begins and continues. Genuine Doubt is a feeling that accompanies uncertainty; that the knowledge we attribute to our experience of the world, the belief-habits that routinely and unconsciously inform our actions, can no longer be sustained. When we experience genuine doubt, our epistemic framework fails to deliver us a convincing reality. That is, we are unable at the moment of uncertainty to shape the 'great blooming, buzzing confusion' (James, 1890, p. 462) of the world into a familiar epistemic framework, and the result is an experience of disequilibrium, an uncomfortable feeling or irritating quality with an innate capacity to motivate us to substitute doubt with the satisfaction of belief. It is 'the void that is felt when connections with the world and others are severed' (Burgh & Thornton, 2016a, p. 889); a void that cannot remain unattended. Camus referred to

this experience as the feeling of absurdity; 'the phenomenological realisation that the epistemic possibility of clarity or understanding of the world always remains out of reach' (Burgh & Thornton, 2016a, p. 887). In response to this unsettling experience, 'it becomes either the catalyst for one to seek the absolute to overcome fear of nothingness, or the beginning of lucidity when fear is faced and awareness of the absurd is sustained' (Burgh & Thornton, 2016a, p. 889). As Peirce points out, there are various ways to comfort the fear of doubt, namely, we can grip tenacity and refuse to consider contrary evidence, accept the authority of an institution's dictates, or use *a priori* reasoning and embrace the most coherent or elegant-seeming belief-set, or we can subject ourselves to rigorous communal inquiry to correct and revise ideas. For Peirce, only scientific inquiry in the form of a community of inquirers is legitimate as a method of settling opinion and fixing belief. Inquiry lies between the states of doubt and belief, and the accompanying feelings of disequilibrium and equilibrium. To avoid moving too quickly from disequilibrium to equilibrium, inquiry needs to be sustained. In Camusian terms, such inquiry requires lucidity: 'a sustained awareness of the absurd that allows for increased creativity' (Burgh & Thornton, 2016a, p. 889). In sum, the uncertainty to which Peirce and Camus refer 'is a passport to creation, an opportunity to embrace flux and shape our human nature and the nature of others in a critical and considered manner' (Burgh & Thornton, 2016a, p. 889).

Ideally, rather than succumb to the fear of doubt and seek comfort and equilibrium by any means (i.e., those that block inquiry), and subsequently embrace any belief that makes us feel good about our actions, we need to strive to ensure that our belief-habits are questioned in relation to the habitat we share with others, including their belief-habits. The ability to do so is something that needs to be fostered, for as Peirce (1899) pointed out, we cannot assume a social impulse or tendency to strive for or seek explanations that coincide with fact. This is not to create a false dualism in the form of innate versus learnt, as Dewey argued the ability to adapt is innate to all species, however, the possession of the ability does not necessitate the ways in which adaption occurs; these can be influenced by thinking. In practice, any of the inquiry blocking methods Peirce mentions can, all too quickly and easily, be employed to 'quell the irritation of doubt through retaining our own belief or uncritically adopting someone else's belief' (Burgh & Thornton 2016b, p. 172). The teacher's role, therefore, is clear; to facilitate Peircean inquiry. To do so, however, a teacher needs also to resist the impulse to uncritically adopt belief-habits themselves. To guide their students to do likewise, they must adopt the perspective afforded by fallibilism, 'that no empirical statement is impervious to epistemological challenge' (Powell 2001, p. 11). Fallibilism is not the same as total doubt or scepticism, which can paralyse action; we cannot begin inquiry if we doubt everything or almost everything, for any attempt at universal doubt would lead to self-deception. Rather, it is to embrace the 'scientific spirit' which 'requires a man to be at all times ready to dump his whole cartload of beliefs, the moment experience is against them' (Peirce 1960, 1.55).

To adopt an attitude of fallibilism, teachers need to assume a position of scholarly ignorance. However, they should be careful not to feign ignorance, otherwise students could become sceptical and see such ignorance as paper-doubting, or the pretence of doubt, which lacks what Peirce called the 'heavy and noble metal' of genuine doubt.

> Paper-doubt is merely self-deception, typically illustrated by Descartes' cogito. For doubt to be genuine, it must actually interfere with my firmly fixed belief-habit and accompanying habitual action, causing me to hesitate and put my beliefs to the test in the form of inquiry. Genuine doubt,

therefore, also acts as a gadfly, a persistent irritant that challenges our view of reality, as well as our established beliefs and values. (Burgh & Thornton 2016a, p. 892)

In other words, we cannot transmute our beliefs into doubts at will. As Peirce (1868) said: 'Let us not pretend to doubt in philosophy what we do not doubt in our hearts' (p. 141).

The teacher's role in facilitating inquiry is multifaceted. In addition to being co-inquirer, the teacher is also facilitator; this position, although not authoritative, is not strictly egalitarian.

> The latter [facilitator's] role requires teachers to draw on their expertise as members of professional communities (i.e., members of the teaching profession with interests in key learning areas, such as arts, mathematics, science or history). Students come to understand that teachers have subject knowledge, but teachers need also be aware that their expertise and the expertise of their discipline or profession is limited, and they must also convey or model this limitation in their role as co-inquirer. (Burgh & Thornton 2016b, p. 173)

There is a need to acknowledge that all inquiry begins with prejudices, which are 'not to be dispelled by a maxim, for they are things which it does not occur to us can be questioned' (Peirce 1868 p. 140). As co-inquirers, teachers must be lucid and keep a vigilant eye on their prejudices and prompt students to do the same. In other words, teachers need to cultivate doubt in the classroom community to facilitate a lucid inquiry.

A Theory of Classroom Practice

But how are teachers to cultivate doubt? The answer requires a theory of classroom practice, which can be tested in the classroom—as the study detailed in the next section will illustrate. Curiously, while the literature on philosophy for children and the community of inquiry pedagogy refers to fallibilism and genuine doubt, the literature aimed specifically at classroom practice and professional development programs is mostly lacking in these concepts and how to apply them. In response, we outline a theory of classroom practice that is congruent with the concept of lucid inquiry, outlined above. Lucid inquiry is a praxis that attempts to reinstate the centrality of genuine doubt in line with Peirce's intent, and in doing so add[s] a missing dimension to Lipman and Sharp's reconstruction of the community of inquiry into a model of educational practice. (Burgh & Thornton, 2016b, p. 166).

Lucid inquiry, therefore, makes the cultivation of genuine doubt central to CPI. To bring lucid inquiry into a model of classroom practice we need to look at the relationship between self-correction and inquiry. Self-correcting practice is the process of reflecting critically on what is done before, during and after genuine doubt and recognising the accompanying experience of moving from disequilibrium to equilibrium. To further flesh this out we turn to the ways in which we differ from Lipman as to how self-correction appears in the classroom.

Lipman's process of inquiry has been variously described in the literature on philosophy and classroom inquiry (see Lipman, 1991; Cam, 2006; Burgh, Field & Freakley, 2006; Davey Chesters, 2012). As part of this process, students need to learn to recognise and evaluate the ways in which they think and participate with others. Self- and peer-assessment can provide a means by which 'students can teach themselves to be independent and effective thinkers' (Burgh, Field & Freakley, 2006, p. 131). Such means are usually limited to reflection at the end of the dialogue, the aim of which is to allow students to make judgments about the quality of the dialogue and their own participation as members of a community of inquiry. Different procedures have been recommended, including check lists, criteria, thumbs-up and thumbs down, and fishbowl discussions. These methods can 'promote

individual responsibility for the functioning of the group and so bring about the sort of educational climate required for a community of inquiry' (Burgh, Field & Freakley, 2006, p. 130). However, as 'self-direction and self-correction are integral components of the community of inquiry, self- and peer-assessment should eventually be part of the philosophical inquiry itself' (Burgh, Field & Freakley, 2006, p. 130) rather than an afterthought to inquiry. *Integrating* self- and peer-assessment into the process of inquiry allows students to pay sustained explicit attention to metacognitive practices as an ongoing part of inquiry. In a lucid inquiry, this means maintaining inquiry through an understanding of fallibilism. Self- and peer-reflection enables students to gauge their position on the spectrum between disequilibrium and equilibrium. Once doubt is recognised, a landscape opens to the mind, and the children are invited to explore the terrain. Incorporating self- and peer-assessment and self-direction into inquiry allows students the opportunity to reflect on their own experiences of doubt, which opens the possibility of not only changing the direction of the dialogue but of changing their notions of self. Giving students the tools to engage in lucid inquiry increases their abilities to shape their own identities.

'Deep reflective thinking' (DRT) reconstructs the Lipman/Sharp notion of self- and peer-assessment in inquiry (Fynes-Clinton 2015; Nichols, Burgh & Fynes-Clinton, 2017) in a way that incorporates lucid inquiry. DRT is the overarching term used to define a specific way of thinking and engaging in learning that emerges from a balanced, dynamic interplay among four key elements: the first is immersion in CPI, the second the development of a repertoire of intellectual skills and processes, and the third, explicit attention to metacognitive practice, or lucid inquiry, which leads to the fourth element, the reconstruction of experience (Nichols, Burgh & Fynes-Clinton, 2017). DRT is an ongoing method of self- and peer-assessment for both students and teachers to measure and propel the intellectual progress of inquiry. A further difference in the practice of DRT is the shift from books as stimulus to the stimulus being derived from the children's individual and group reflection.

> Like Lipman's purpose-written philosophical stories-as-text, in which philosophical concepts and philosophical procedures directly relate to children's experiences through the experiences of fictional characters, so too with the community of inquiry, but children are the characters in their own narratives directly relating to their own experiences. Prior to any judgements, the 'story-telling' needs to be sustained … [without judgement]. This can assist the emergence of or it can cultivate genuine doubt, not only in individuals, but also as a community, which can bring on the need for inquiry, and subsequent critical analysis. (Burgh & Thornton 2016, p. 173)

To facilitate this in classroom practice teachers need to recognise when students are experiencing genuine doubt. Indicators include:
- Student's hesitation in relation to their own viewpoint or ideas
- Questioning relevant to the point under discussion
- Persistence with an idea that challenges the general views of the community
- Counterexamples
- Alternative suggestions
- A change of mind in response to the ideas of others
- Reconstruction of thinking habits
- Internalisation and reconstruction of a theory (Fynes-Clinton, 2015)

It is important to note that none of these indicators, on their own, are enough to conclude that students are experiencing genuine doubt, however, the greater the combination of indicators the greater the likelihood of this being the case. Each indicator can also be used

to prompt students to further inquire, providing ways for teachers to cultivate doubt in individual students and, ideally, collective doubt in the community.

It is unlikely that all students will come to a position of genuine doubt together each time they are engaged in DRT activities. However, because DRT includes an ongoing process of self- and peer-assessment as part of philosophical inquiry, it helps to develop their capacity to sustain awareness of their felt doubt that strips from the world 'the images and designs that [they] had attributed to it beforehand' (Camus, 1977, p. 20). When a student experiences genuine doubt, and as a result, begins to ask questions or expresses ideas that challenge their own beliefs, this has greater capacity to cultivate doubt in other students. In the same way that modelling philosophical inquiry in texts aids student acquisition of the concept of philosophical inquiry, genuine doubt modelled by one student, aids others in acquiring the concept of genuine doubt. Students who experience genuine doubt are more inclined to grapple with ideas to create meaning and to engage in inquiry with others to find ways to explore their ideas. One student's doubt can lead to other students sharing similar doubts, which has the potential to lead to 'collective doubt' that could become a significant indicator of intellectual progress during CPI. For the teacher, it can be valuable as a kind of formative assessment within the students' zone of proximal development (ZPD) (Vygotsky, 1978), and for students, it provides a way of comparing their own experiences with that of the community. *Sustained intellectual progress occurs when the inquiry reaches a point whereby students can thoughtfully move between the positions of disequilibrium and equilibrium whilst understanding the impermanency of any fixed belief.* This, in turn, enables reconstruction of thinking within the community of inquiry and appropriation of learning in the context of CPI and beyond.

Deep Reflective Thinking: Collective doubt in the classroom

This section outlines a longitudinal investigation by Liz Fynes-Clinton (2015) that examines the extent to which primary school students engage in episodes of DRT within and beyond the context of CPI. Commencing in 2012, the investigation was conducted in a Brisbane state primary school, which, for two years prior to this investigation, had established CPI as a whole-school pedagogic method that underpins all curriculum planning, development and implementation at the school. Evidence suggests that if students engage in DRT, they more frequently experience cognitive dissonance and as a result improve their ability to engage in further and more frequent DRT. However, the evidence also shows that for DRT to occur within class communities, a specific set of conditions needs to be set in place for the students. These conditions include sustained practice in philosophising, the explicit teaching of a repertoire of skills and practices, a deep focus on metacognitive practices and the provision of stimulus material that will elicit genuine engagement and connection to the ideas under discussion. In addition, the philosophical knowledge and skill level of the class teacher and the ways in which the philosophy curriculum is presented both impact on the students' development of DRT and, in turn, the emergence of forms of doubt within the community.

Fynes-Clinton's investigation followed the classic design research model where the researcher frames an intervention that could be used independently by any number of teachers across a variety of learning contexts. As the investigation moved through various phases or design cycles, the intervention was modified, improved upon and redesigned so that it could effectively accommodate a variety of classroom contexts and a diverse range of student learning needs. Design methodology is based on a strong underlying epistemological and

theoretical analysis of curriculum content and teaching and learning practices, with the aim to increase theoretical and pedagogical understanding (Kelly, 2003). The methodology works in harmony with the underpinning epistemological and theoretical framework of CPI and the key research focus—the students' acquisition and reconstruction of DRT practices. McKenney, Nieveen and van den Akker (2006) maintain that design methodology brings about a synergy between research and practice that is maximised when the researchers are responsive to change. For Dewey (1916), responsiveness to change is a key factor to enabling reconstruction of experience and democracy as an associated form of life.

The research was conducted over three overarching macro-cycles of intervention, consisting of a number of micro-cycles. The three macro-cycles each had a distinct focus as follows: 1. Development of DRT; 2: DRT and philosophising; and 3. DRT and doubt. During each macro-cycle students were immersed in new learning processes. During Macro-cycle 1, a considered selection of inquiry and reasoning tools based on Cam's (2006) *20 Thinking Tools,* were introduced using a range of novel approaches to gain an understanding of the students' uptake and appropriation of the tools in the context of CPI and beyond. Each micro-cycle within Macro-cycle 1 was designed to build on the previous, thus increasing the complexity of the developing repertoire of skills. To enable students to understand how and why the tools could assist them to think metacognitively and make intellectual progress during the inquiry, the inquiry and reasoning tools were not only explicitly taught but the philosophical tool of reflective practice was always introduced so that students assessed their abilities to use the intellectual tools. This was accomplished through a 'teaching COI'. This type of COI differed from the general COI process in that tools were introduced at certain points and were focused upon during the exploration of ideas. Generally, an inquiry would progress with minimal interruptions by the teacher facilitating the inquiry. Traditionally the facilitator's role is to ask substantive and procedural questions that would assist the inquiry to remain on track, probe for depth and model or draw the student's attention to the use of inquiry tools and processes. In a teaching COI, the researcher halted the inquiry at specific points and stepped out of the role of facilitator to introduce or build on the use of the tool that was the current focus of the design. Students were then asked to try to use the tools when they felt it appropriate during the discussion. In order to draw students' attention to the use and impact of the intellectual tools during the inquiry, the flow of discussion was further interrupted when the focus tool had been used. The use of the tools and its impact on the discussion would immediately be reflected upon during the process. Following this, a number of general COIs were implemented to identify students' purposeful appropriation of the newly acquired tools to further the intellectual progress of the inquiry. This method of teaching encouraged the participating students to view themselves, individually and collectively, as active inquirers within a community. Over time, a subtle ontological shift was observed among the participating students. Students' self-perceptions moved from being participants in a process to becoming inquirers within a community of inquirers. This shift in perception prompted the students to take greater responsibility for the path of the inquiry and the collective understanding of the community.

Macro-cycle 2 focused on the students' reconstruction of the thinking and learning experiences gained from Macro-cycle 1. Whereas Macro-cycle 1 interventions had been about building inquiry procedures and intellectual inquiry tools, the key focus for Cycle 2 was to build substantive understanding and to encourage students to connect with the ideas under discussion thus facilitating reconstruction of previous experiences. Macro-cycle 3 focused on the emergence of doubt within the COI and its connection to DRT. The nature of

interventions during this macro-cycle enabled further development of the students' substantive understandings. The students' development of their collective identity as a learning community both within and beyond the context of philosophical discussions was an additional focus of all three interventions. As the notion of the classroom as a deliberative, inquiring community is central to CPI (Burgh, Field & Freakley, 2006), for students to become effective thinkers, CPI needs to extend beyond the philosophy lesson and become a sustained practice throughout all learning areas. The aim of the interventions at each macro-cycle of the research was to provide students with skills and understandings that would enable them to develop their identity as a thinker and learner and for them to understand how their reconstruction of thinking habits impacts on the progress of the class community (Burgh, Field & Freakley 2006). Through students' reflective comments in both small group focused dialogues and the communities of inquiry, it was evident that many of the students greatly valued this aspect of their new learning.

> I also think the community 'cause it's like I'm bring up ideas and putting it into the subject and then it's getting bigger by people building on it. (Year 4)

> Um, the thing that helped me most was *evolving* because I couldn't have done, thought of anything without like other people starting it for me. I can't just think of a thought that just pops out of my head, I need to, I need somebody to maybe clarify it. (Year 5)

> I saw that our, our community of inquiry was getting – like it's we were in the middle of a marathon and now I know, we know that it's like challenging to finish it because it's like late in the year to finish it but we kept on going – the whole marathon… (Year 5)

During Macro-cycle 2, Peirce's notions of genuine doubt and paper-doubt became the key focus of the research as further questions emerged: How is doubt cultivated within the COI? In what ways are DRT and cultivation of doubt connected?

It was hypothesised that there was a significant interconnection between DRT and the concept of doubt. For students to develop the desire to learn it is necessary for them to experience doubt. However, as this desire is not always evident in primary school classrooms, something further is needed to ignite this desire in the context of learning at school. In response to this, the study proposed that a 'metacognitive identity' is the link that connects what may begin as cultivated doubt and evolve into genuine doubt within a community of inquirers, and that DRT provided a method for meta-reflection throughout the inquiry process by building on a solid framework of reflective practices to bring this about. This model encouraged students to think about 'who they were' in their own search for knowledge and understanding. During Macro-cycle 1, students were given multiple opportunities to develop DRT practices which could then be reconstructed within a new learning context. The following examples are of students' thoughts in relation to this hypothesis:

> Sometimes people are sort of like lazy and they don't really, they want to know something but they're not that desperate to have it but if you are desperate and you really, really want it, you want the knowledge then you need to, you can try harder to get it and, because sometimes people that don't want it don't try hard enough and they don't get the real answer. (Year 4)

> I think wisdom, well knowledge is like you have the power, wisdom is using that power um wise, well wisely um like using it correctly and not doing stupid things but things that you know, help people benefit. (Year 6)

Macro-cycles 2 & 3 took place in mixed year level classes in 2013, 2014 and 2016. The intervention process during this stage of the research did not involve the introduction of

new tools or processes. Instead, the focus was on substantive understanding of philosophical concepts, thus, student groups of mixed year levels were introduced to a range of philosophical theories. The overarching inquiry question for each of these macro-cycles was: How do we acquire knowledge and understanding? This was explored through a variety of stimuli and connecting conceptual analyses. Key philosophical theories in relation to the acquisition of knowledge, including the theoretical notions underpinning the study, became the initial stimuli for discussion on commencement of each macro-cycle. Further stimuli were provided by the students themselves, from their own experiences; like Lipman's fictional characters in his purpose-written stories-as-text, only the students were the actual characters. When planning Macro-cycles 2 and 3, it was anticipated that the students would appropriate the intellectual tools from the Macro-cycle 1 to enable them to examine the ideas and theories presented and assist them to make connections to their own thoughts and experiences. Evidence documented students' reconstructions of their learning experiences from Macro-cycle 1 to reflect metacognitively on their reasoning and reflective practices as they were taking place during the inquiry. The framework for thinking during the inquiries required students to think substantively in three key ways: through ontological, epistemological and values inquiry. Students were encouraged to audit their thinking about ideas so that they ask the following three questions:

- What is the essence of…?
- How do we know?
- Should we care?

Additionally, teachers were provided with the skills to include this approach in their repertoire of teaching practices in and beyond the context of philosophy. It became a way to plan, develop and implement rich, authentic teaching and learning experiences.

The inquiry direction in the Macro-cycles 2 and 3 followed the students' connections to key philosophical themes and their genuine interests during each inquiry process. Students explored and connected the philosophical themes and made links to key interrelated concepts. They were provided with opportunities to discuss theories and connect to philosophical concepts and ideas explored during prior sessions. In addition to this, they made substantive links to their own developing philosophical understandings and life experiences. Following students' genuine interests was fundamental to the process as this sparked their motivation to formulate personal theories based on the ideas presented. A key focus of the investigation was the ways in which students linked their own reconstructed notions of philosophical theory, as the following example suggests: 'I am linking to [S]. Say that there are like two circles, one bigger than the other, and the first circle is the circle you know the stuff that you don't know and the other circle is the stuff that you don't know that you don't know'. (Year 3).

When students actively engage in DRT and this becomes a habit of mind (a belief-habit), then this reconstruction of thinking habits would enable them to perceive themselves as inquirers. They develop an identity as a thinker and inquirer and this in turn facilitates the inclination to examine their internal prejudices and the ways in which these prejudices impact on their understanding of the world (Burgh & Thornton 2016a, 2016b). This proposition led to further analysis of the data to determine ways in which doubt was cultivated amongst the students.

Evidence from the data has highlighted an inextricable connection between DRT and Peirce's notion of doubt. The connection could be interpreted as a reciprocal one. The

recognition and examination of doubt within the community would require DRT. However, if students feel no provocation to test their beliefs in response to their own or others' disequilibrium then doubt would not be cultivated within the community, and, in turn, students would not develop the skills to reconstruct the DRT experience. For students to reconstruct their thinking experiences they would need to internalise their thinking in relation to the doubt they experience. Students were asked to formulate their own theories in relation to the acquisition of knowledge and understanding. The following are examples of students using DRT to articulate their own theories, specifically in relation to the key theoretical notions that shape this paper.

> My theory on how we acquire knowledge is through doubting or testing an opinion's legitimacy until it is proven right or wrong; this can be done through inquiry or experiencing it. (Year 6 student 1)

> I think you come to it [knowledge and understanding] through - like yes you need that genuine doubt to start off but then um like you can do two things to further explore that genuine doubt. You can have a discussion, see what other people think or then you can um experience it and make up a decision for yourself … and um so like yeah, 'cause that inquiry can be just talking or it can actually be experience. (Year 6 Student 1)

Comments from this student suggest an understanding of the role of genuine doubt in inquiry akin to that proposed by Peirce. In the first comment the student suggests 'testing an opinion's legitimacy until it is proven right or wrong', which echoes Peirce's idea that inquiry forms the space between genuine doubt and fixed or settled belief. In his second comment the student makes the distinction between an inquiry that is 'just talking' or one that is an actual 'experience'. Here the student appears to suggest that it is the way you 'further explore' the genuine doubt that provides the experience that could lead you to knowledge and that 'just talking', similar to Peirce's notion of paper doubt, would not generally lead to knowledge acquisition.

> I would agree with that about people's experience of things that they do or they think but also with doubt and wonder—like that's like the trial and error to state things as facts; like a plant will grow in dirt, you wonder about that but if you try it and it works, that's like the settled belief … So, without wonder or doubt I don't think we would really have any facts or anything like that. The world would be much different. Because, yeah, people wouldn't really know... (Year 6 Student 2)

Student 2 concurs with Student 1 about doubt and experience, but in addition to this, links doubt to wonder, for which doubt is a necessary condition to bring about inquiry: without both doubt and wonder 'we wouldn't really have any facts' and 'people wouldn't really know.' 'Um well, I think there's knowledge and that's the, your settled beliefs then there's doubts and those are your doubts and there are your opinions and those are the things that you are um always thinking about and agreeing with or even changing sometimes'. (Year 4 Student).

In the above comment, the student drew a relevant distinction between knowledge, referred to as 'your settled beliefs', and opinion, understood as 'things that you are always thinking about' that may change as your thoughts change. It appears that by making this distinction the student is suggesting that doubt sits between opinion and settled knowledge. When asked by the teacher about where thinking habits fit in the student's theory, the response was that if you see your thoughts as opinion then you can 'bend' but if thoughts are either settled or you always doubted then reconstruction is not possible. The distinction the student seems to be making is between certainty, absolute skepticism and fallibilism (opinion that can be doubted): 'Um, those are the three categories of thinking habits, like so um, um if all your,

if all your um, thoughts are in knowledge then you can't bend, if all your thoughts are in doubts then you, you can't bend but if all your thoughts are in opinion, you can bend really easily'. (Year 4 student).

In the following comment, the student raised the notion that the desire to question arises from the experience of collaborative inquiry, suggesting that one desires to question to 'find out the truth'. The comment aligns with the views expressed by Peirce in the 'First Rule of Logic', mentioned above, in which he makes the connection between learning and the desire to learn that is necessitated by a dissatisfaction that accompanies uncertainty over our beliefs. 'Um I think like overtime you, you tend to just kind of naturally start questioning new ideas, um because er you have been in a lot of, lots of community of inquiries you tend to think a little bit more about things, think deeply and you kind of get, you get a bit of like a um like er (laughs) like you want to find out the truth and, get to the bottom of things'. (Year 6 Student 3).

During a community of inquiry, students were asked to consider why Socrates was thought of as the wisest man in ancient Greece. The following comments demonstrate further examination of the connection between learning and the desire to learn. One student responded as follows:

> I think he was wise because he was ignorant because um, if you know you're ignorant then that gives you something to um, go for um, you know and that 'cause you know you're ignorant you also, your mind isn't clouded with the thought that you're perfect, and you know things, you're a genius, um, you're the smartest man, when you know you're ignorant then, you kinda just think, you know, you think of yourself as not er, you know, not as this great awesome person that's perfect, you think oh well, you know, I, I want to pursue that knowledge and that gives you something um, to work for…. (Year 6 student 1)

The above comment suggests that if a person remains in a state of infallibility, then they are not likely to pursue knowledge. In the comment below, the student builds on this comment by attempting to make a distinction between two kinds of ignorance; having a desire to learn as being ignorant 'in a good way' as opposed to having no desire to learn, a form of ignorance that would not be considered 'good'.'Well it depends what sort of ignorance you are talking about, like literal ignorance is ignorance of wanting to learn um, um, if you're if you don't desire to learn then basically you're being ignorant but if you desire to learn you are being ignorant in a good way – I guess'. (Year 5 student).

Conclusion

By highlighting the role of genuine doubt in community of inquiry pedagogy using DRT, we have argued that the Peircean blocks to inquiry can be removed. Through the DRT framework, students are provided with the philosophical tools to overcome the fear of doubt through understanding their own fallibility and that of others.

> As I was listening to everyone it made me think a bit more, and think about having wisdom. I don't think you can be afraid if you have no wisdom because what leads to being afraid is you think about something and that leads to fear, like you are scared of something that you think of, and I think wisdom is the key that can open any door. Like if you have wisdom you can open the door to fear; you can open the door to, like, questioning the things you think in your mind and you become a lot more wise. (Year 7 student)

> Collective doubt emerges within the inquiry through a convergence of several of the above-mentioned doubt indicators. This could be evident within an individual comment or collectively throughout an episode of several comments. This convergence stimulates the collaborative examination of doubt as part of CPI. Through the experience of DRT in relation to the examination

of collective doubt, students begin to understand their own fallibility and further to this, embrace absurdity. This is evidenced by the considered way they structure their responses, punctuated with thinking pauses in the form of 'um', 'like' and the inclusion of phrases such as 'I think' or 'I guess'. Students do not only begin to recognise their own fallibility, they welcome it. Consider the following example: 'I think it's the fact that we get to explore what life actually is so let's say I think I'm alive but I, you know, you never normally think: How am I alive? Why am I alive? So, it's pretty much just like life is the wardrobe and philosophy is the Narnia'. (Year 6)

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